Toitu te whenua
Land Information
New Zealand

Crown Pastoral Land Tenure Review

Lease name : GLEN NEVIS

Lease number : PO 201

Conservation Resources Report - Part 2

As part of the process of Tenure Review, advice on significant inherent values within the pastoral lease is provided by Department of Conservation officials in the form of a Conservation Resources Report. This report is the result of outdoor survey and inspection. It is a key piece of information for the development of a preliminary consultation document.

They are released under the Official information Act 1982.

April 05

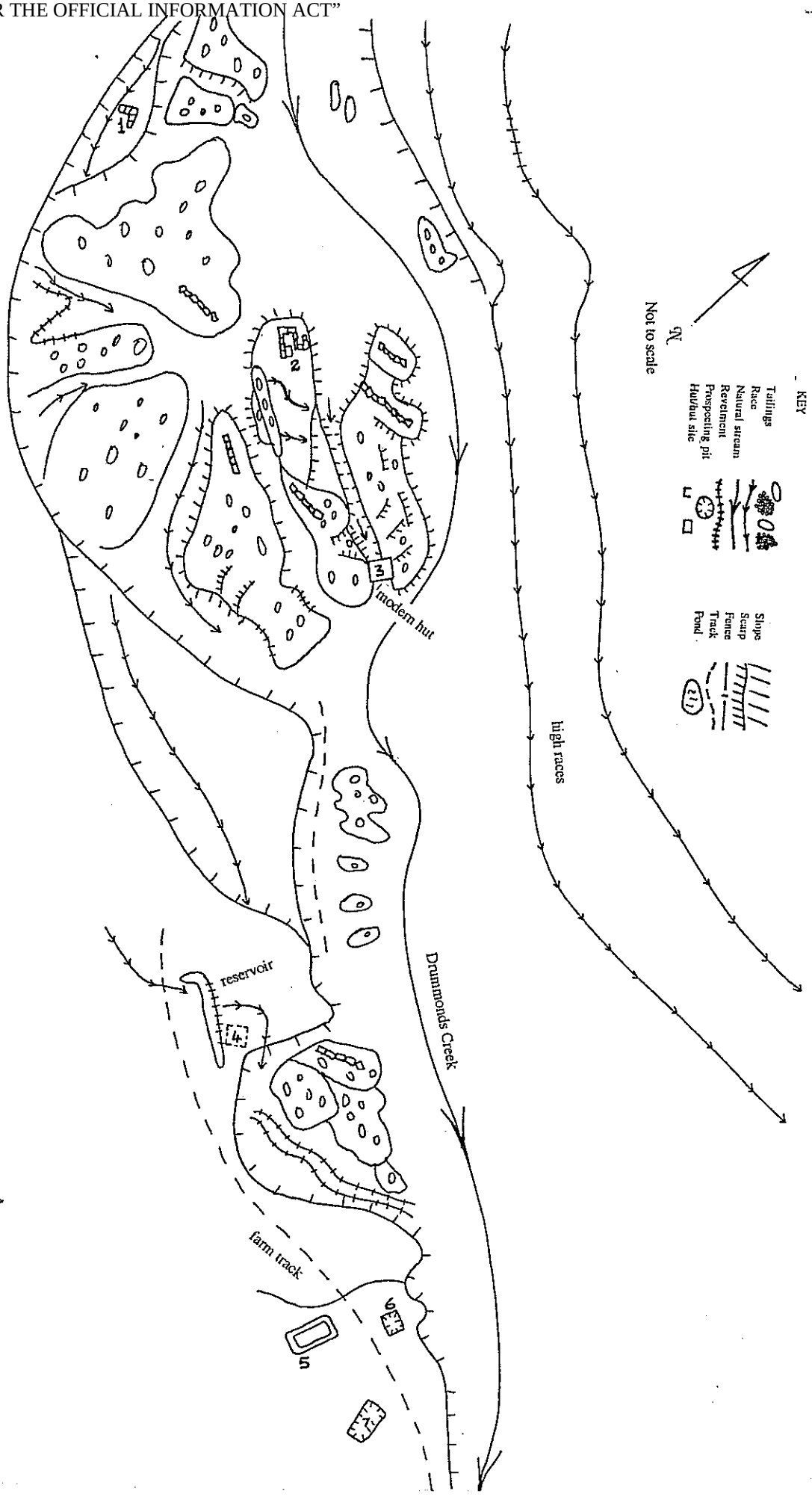

Figure 5. Details of the heavy tailings in Drummonds Creek and the line of huts and enclosures.

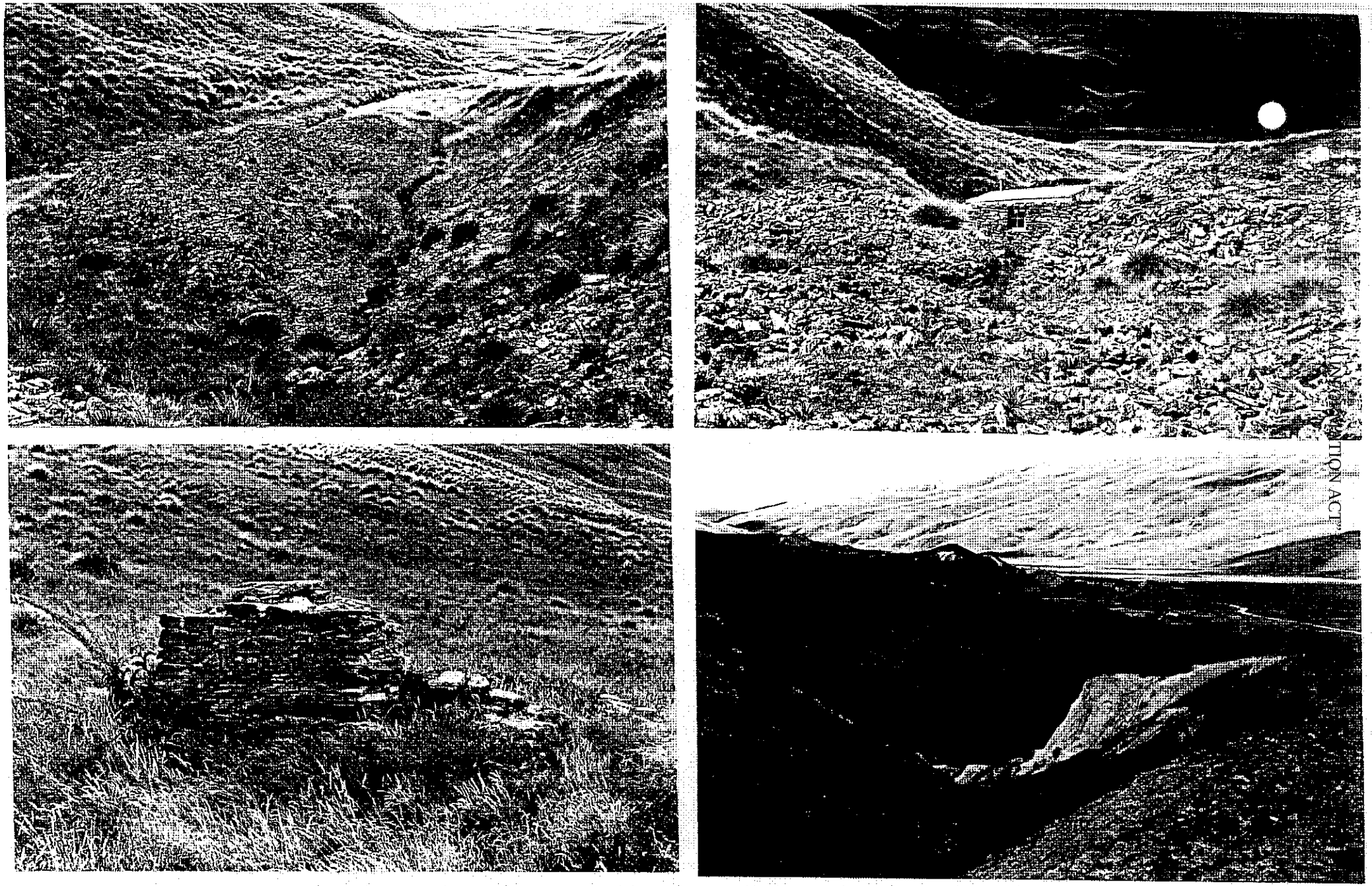

Figure 6. Drummonds Creek and vicinity. Upper left: Tail race below the modern hut. Upper right: modern hut at the end of a tail race. Lower left: the stone hut ruin No.9. Lower right: Looking across sluicings in an unnamed creek to the Pactolus Claim.

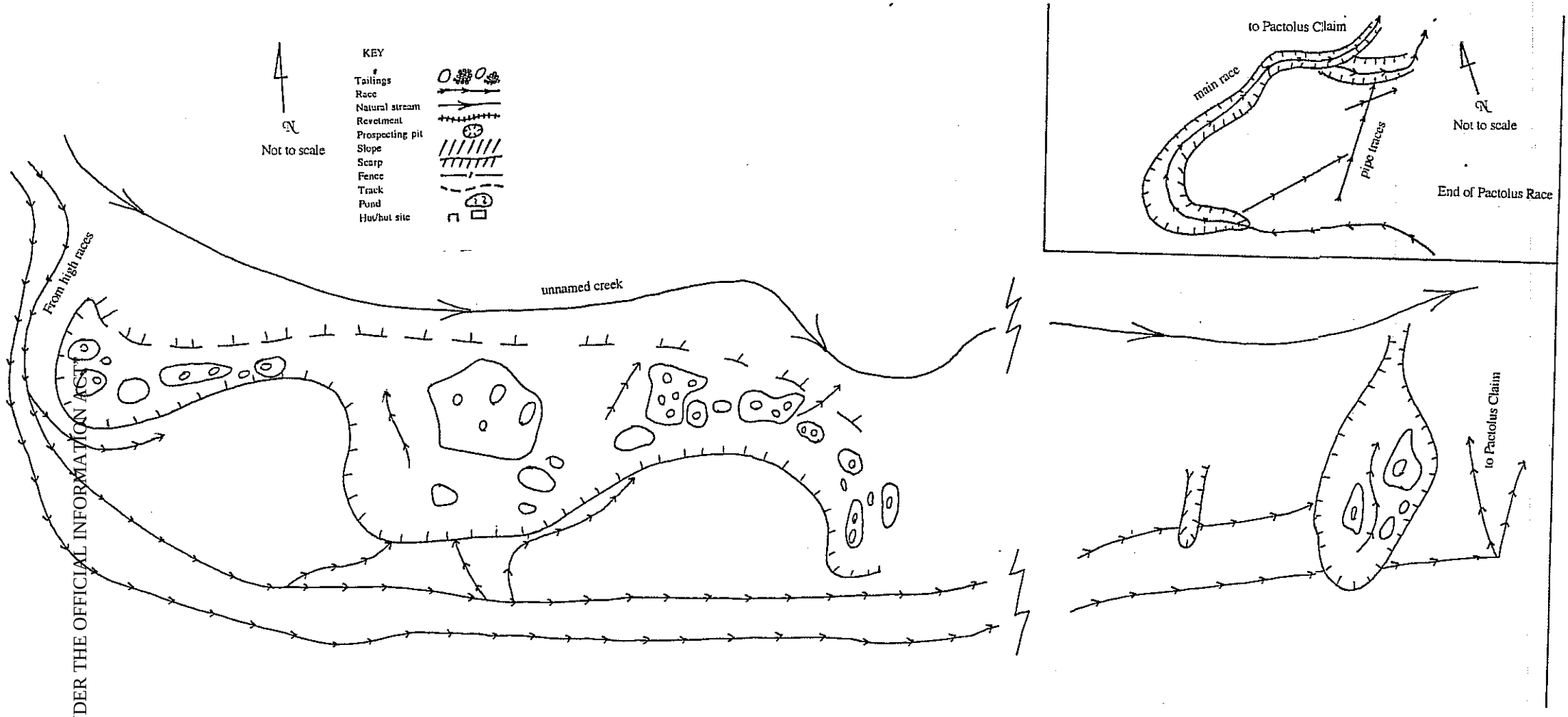

Figure 7. Workings along the south side of a small creek south of the Pactolus Claim, with the end of the Pactolus Race inset.

Figure 8 Near the Pactolus Claim. Upper left: Looking across the end of the Pactolus Race (around the white van) to the Pactolus Claim at high left. Upper right: the transformer west of the Claim. Below: the two stone house ruins at the Claim.

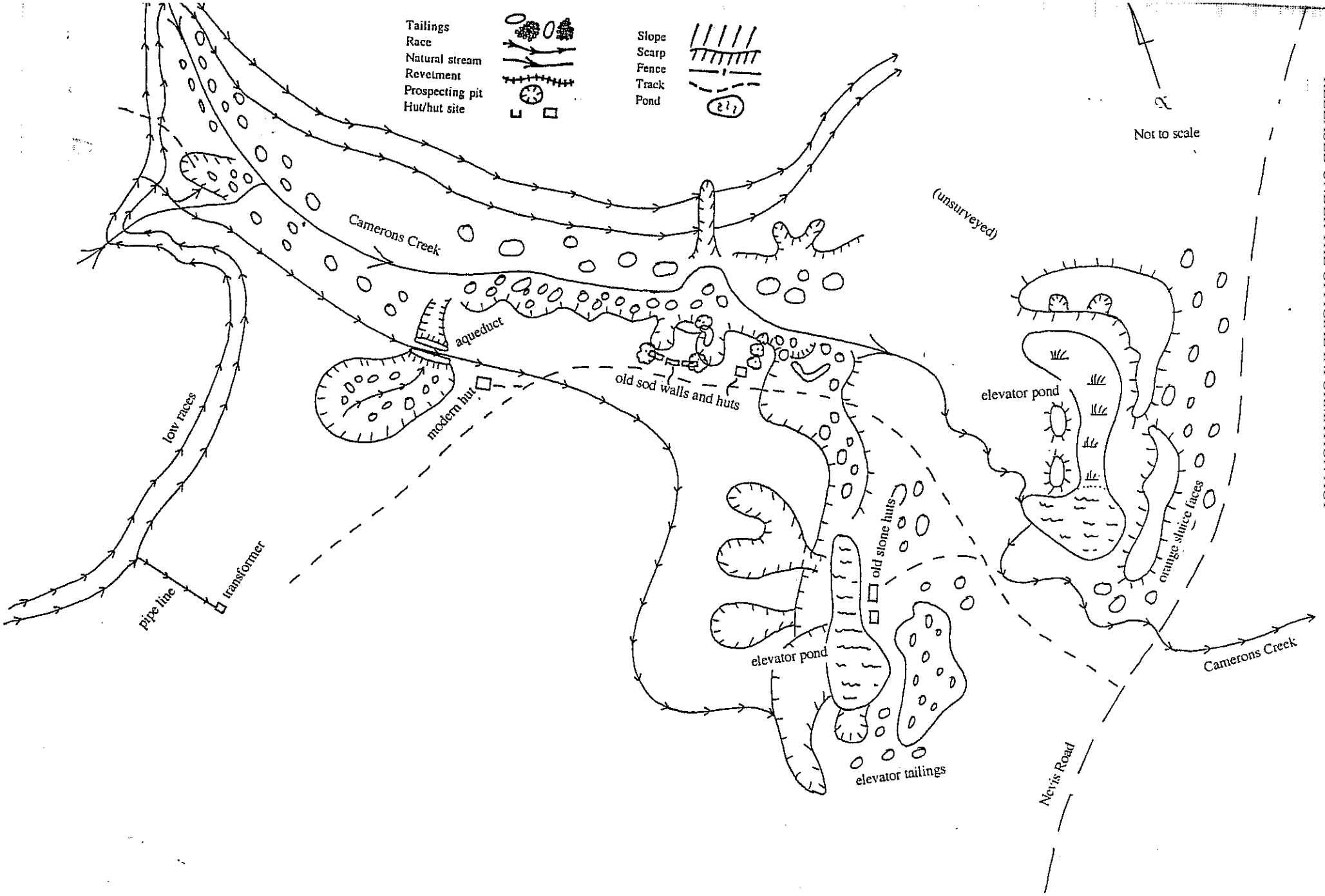

Figure 9 Sketch plan of the Pactolus Claim. The ridge of orange gravels is on the right, and Camerons Creek comes down from the high races at the left.

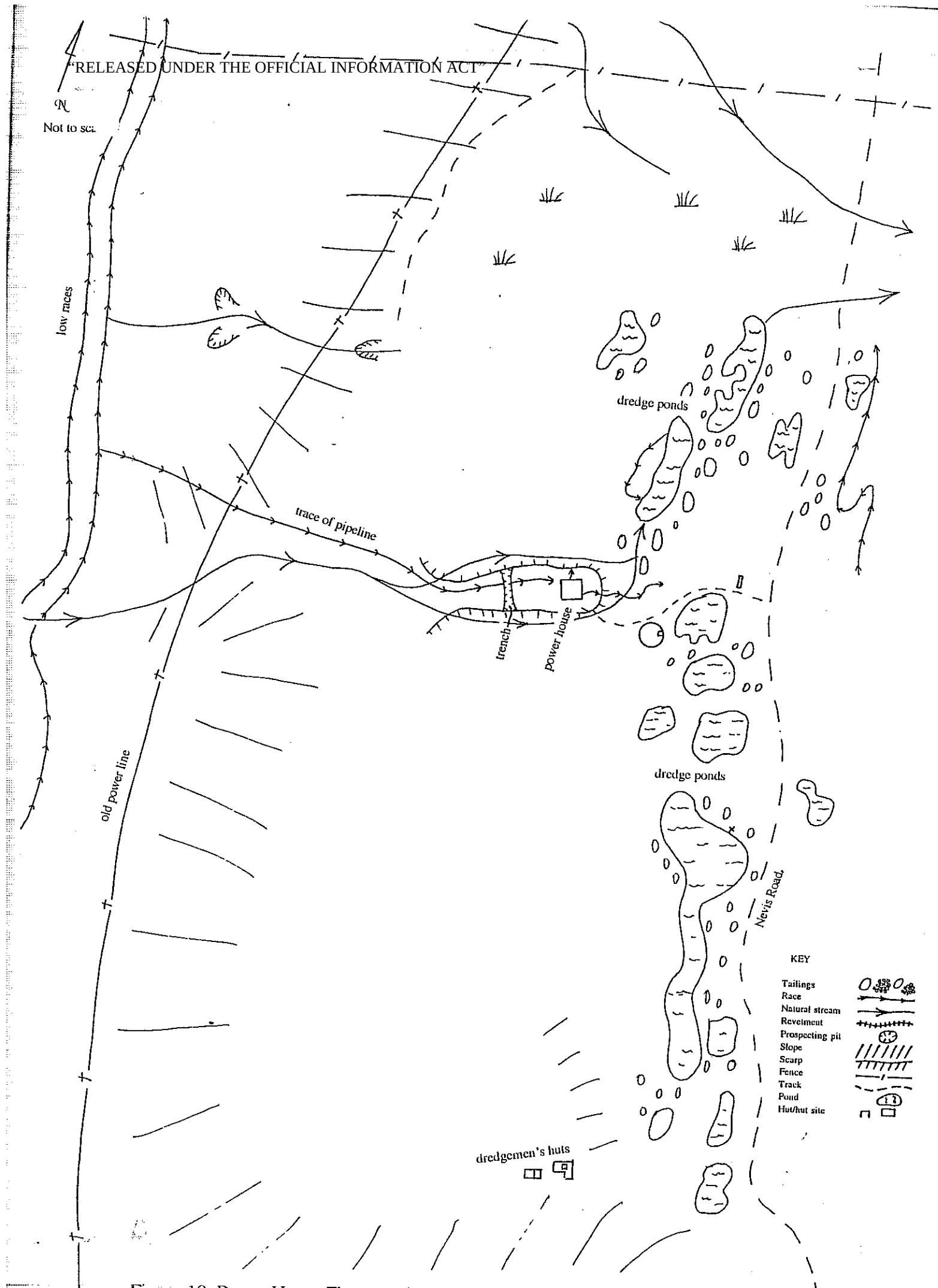

Figure 10 Power House Flat — Sketch plan of the dredge ponds, tailings and the power house foundations.

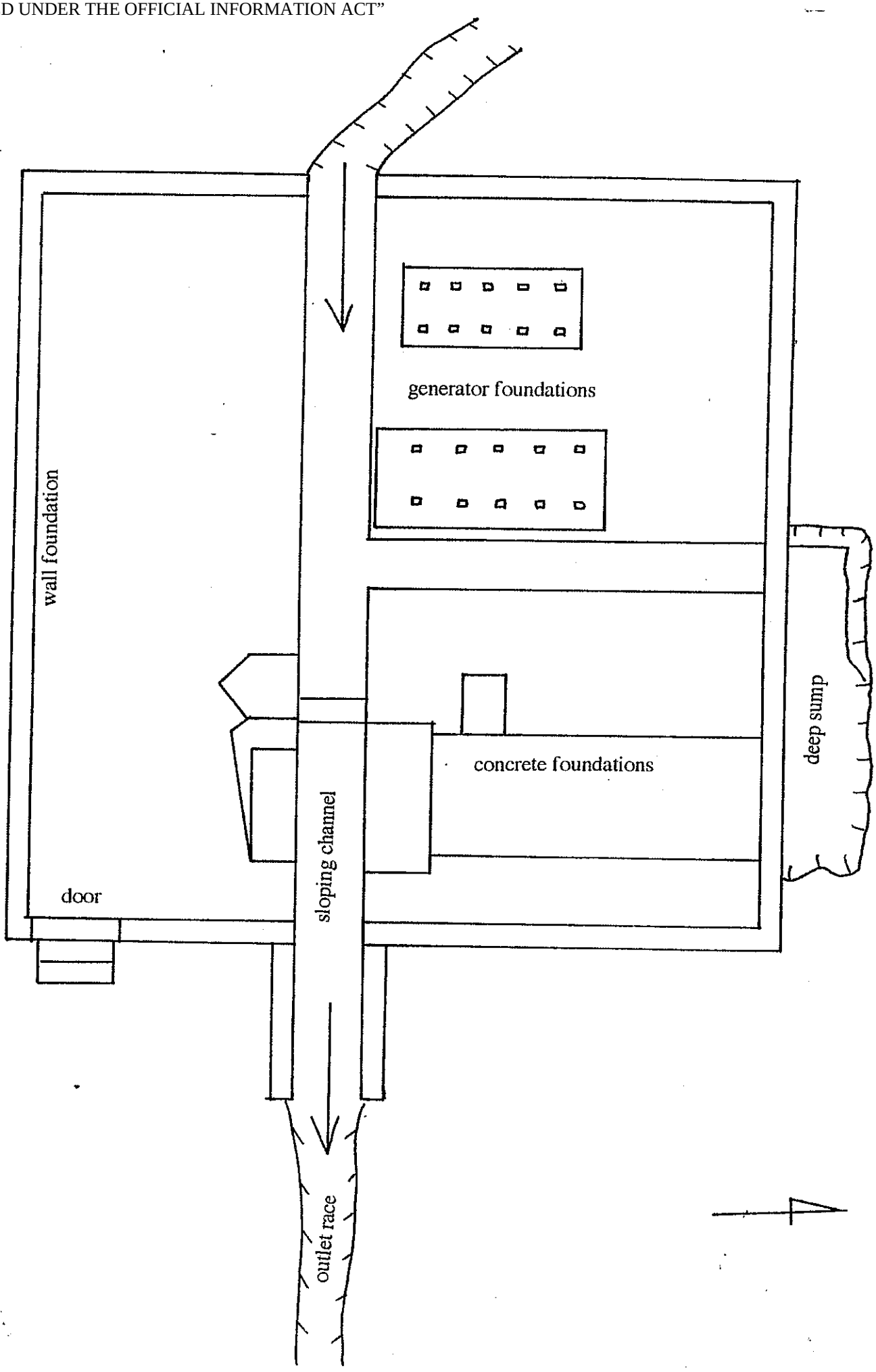

Figure 11 The outlines of the concrete foundations of the power house.

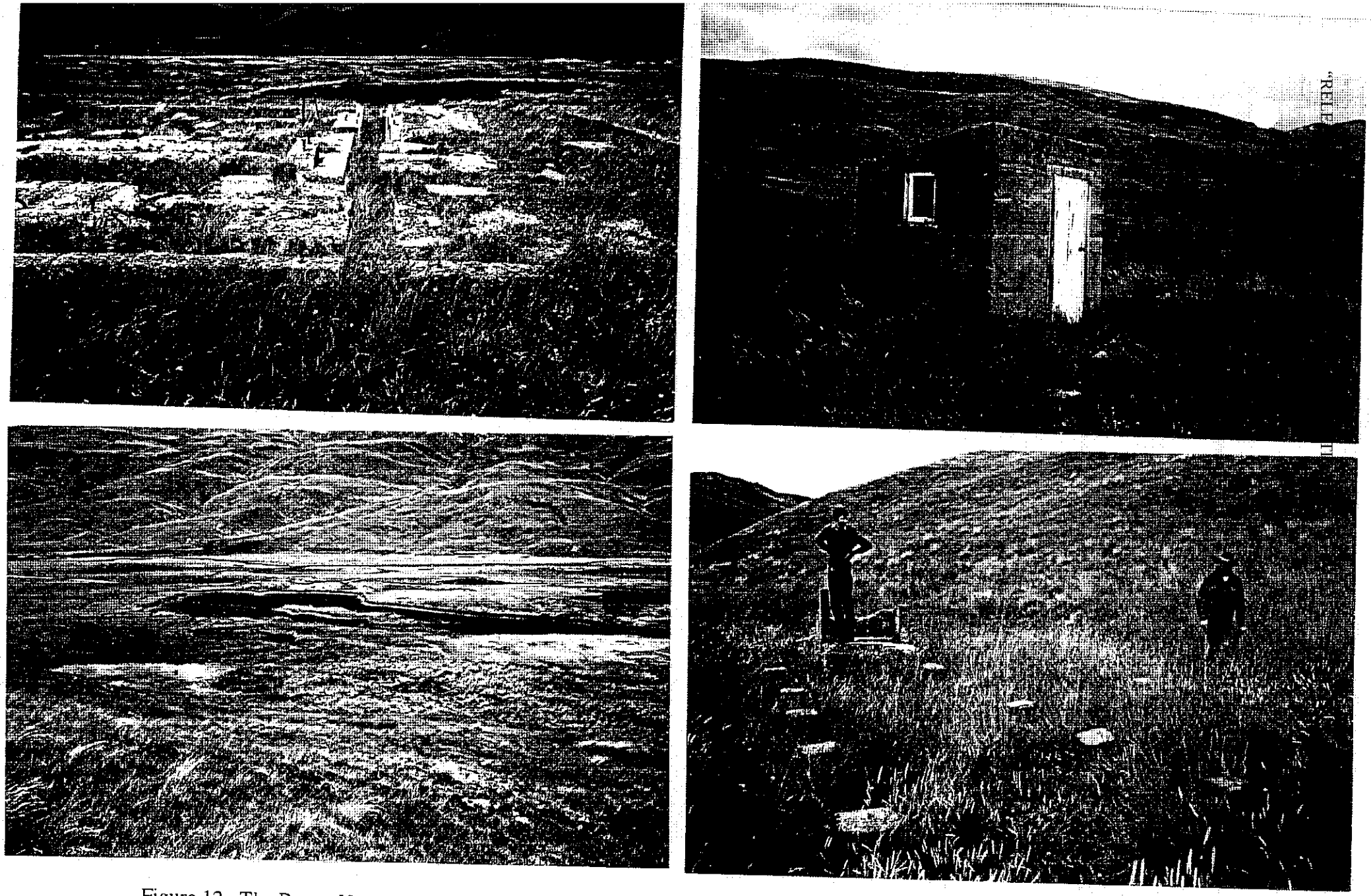

Figure 12. The Power House flats. Upper left: the power house foundations. Lower left: the dredge ponds as seen from above the power house. Right: the concrete "cell" and house foundations at the southern end of the flat (field assistants, Peter Bristow and Peter Mason).

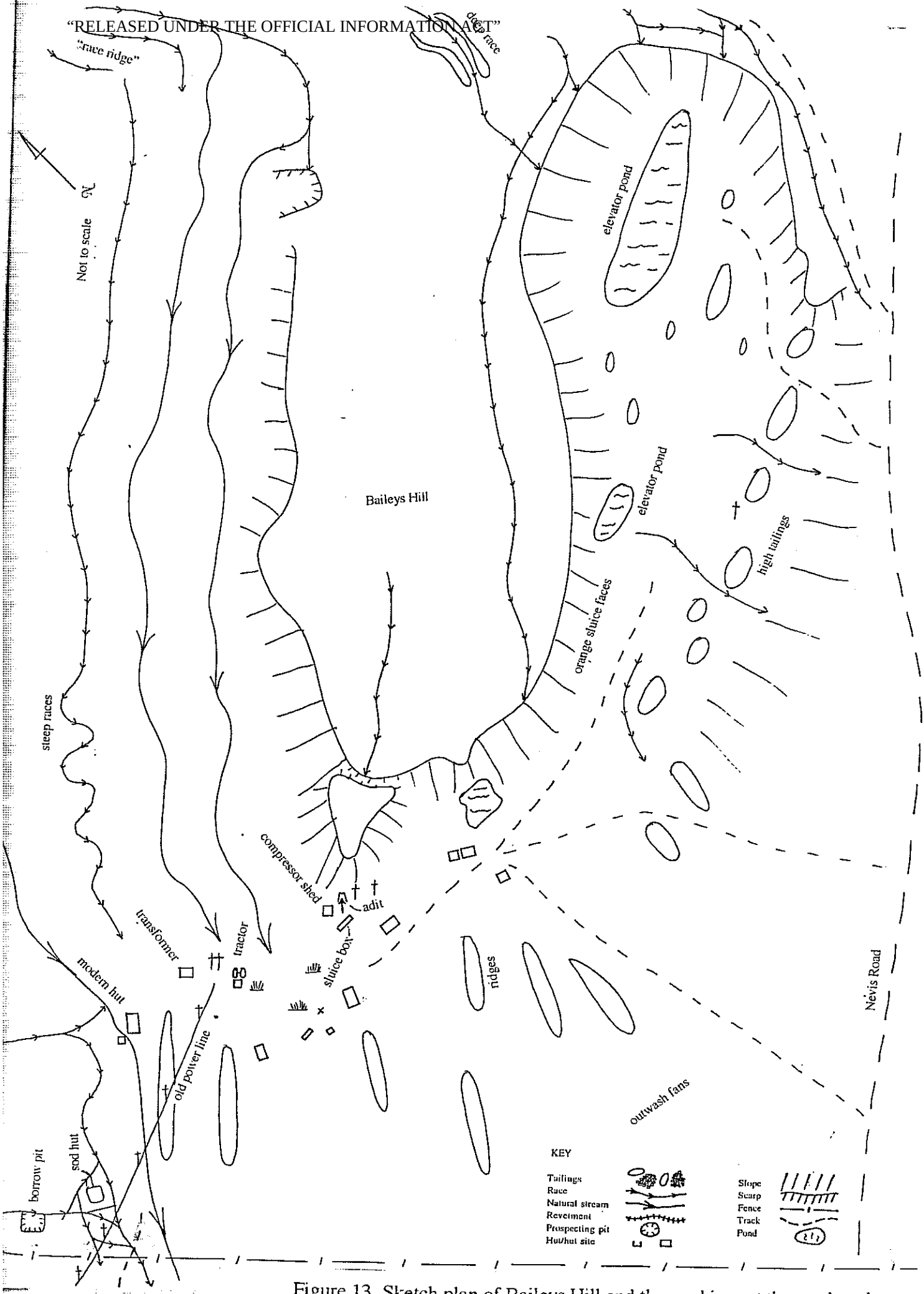

Figure 13 Sketch plan of Baileys Hill and the workings at the south end.

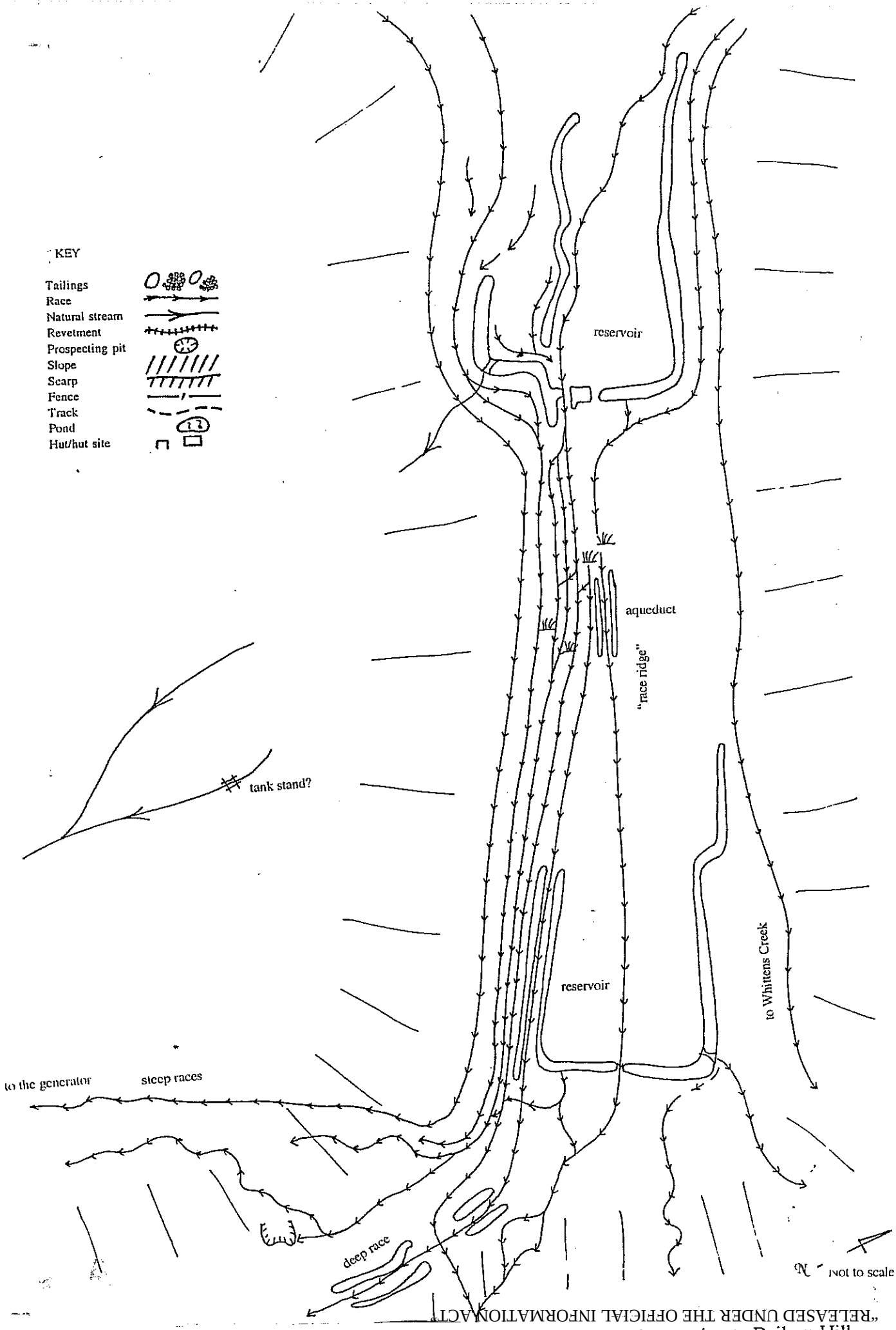

Figure 14 Sketch plan of the ridge full of races and reservoirs running to Baileys Hill

Figure 15 Baileys Hill. Upper left: Four of the parallel races on the ridge running to Baileys Hill. Lower left: Baileys Hill from the south with the adit entrance low centre. Upper right: Looking down into the elevator pond on the east side of the hill. Lower right: The transformer and some of the huts.

Wakatipu.

Mining

The history of mining in the Upper Nevis was dealt with briefly in Hamel 1989, pp.7-9, using only the Mines department reports. Some wardens' court records of race licenses have been used for this report, and provide extra information on the dates and significance of mining in the Upper Nevis.

The wardens and Mines Department inspectors did not report on the Upper Nevis until 1892. It is perhaps significant that the road through the gorge between the Upper and Lower Nevis has never been user friendly and the road out to Garston was built in 1891. It is apparent that there was mining in the Upper Nevis in the 1860s because at least three major races from Drummonds Creek to Camerons Creek and Baileys Hill were built between 1866 and 1869 (Appendix 1, WR1962Cr, WR6369CR, and WR2122CR). There is also an early report of a reef being discovered in the Upper Nevis in 1864 and two miners called McMorran and Smitham opening it up in 1869, but nothing came of it (Parcell 1976:272). The Nevis was an important dray route between the Southland Plains and Central Otago, and the upper Nevis would not have been ignored by the miners in the 1870s. Being close to the strong centre of Chinese mining in the Nokomai, it is not surprising that the Reverend Don recorded Chinese in the Upper Nevis during his travels — as many as 18 in 1888.

The first major reported work was the Pactolus Race, a spectacular failure because of a lack of understanding about water power. (The Pactolus River in Lydia is the river that King Midas washed in to get rid of his golden touch and which has had gold in its gravels ever since.) In 1892 the Pactolus Company built a large race for about 60 heads of water out of the Nevis River itself and brought it in at only 70 feet above the workings, in the belief that volume would compensate for height (Hamel 1989:7, 15). Such low pressure even with so much water does not produce the pressure at the nozzle that say 8 heads falling 300 feet does. Hood (1990) compared the amount of work done to build the race and the amount of dirt it could shift per year, and found it would have taken 134 years to break even. The Golden Lion race to Nokomai by comparison would have broken even in two years. The Pactolus Company changed to converting flat sheets of iron into cylindrical pipes for the enormous pipelines which about five other sluicing and elevating companies required.

Other miners were taking up the old races in the early 1890s, but the available records do not show much activity until the turn of the century. Robert McDonald had taken up a claim of two acres at Drummonds Terrace in 1896 and then a race from Drummonds Creek to Camerons Gully in 1898. The race licenses show that he then went into partnership with the Ellis family, who were sheep farmers[1]. Between

[1]Thomas Ellis was a grazier at Mt Gambier and John Ellis a runholder near Invercargill. They chose to hold all their mining properties in the names of their wives, Jessie and Florence, who appear regularly in lists of claims in the Upper Nevis.

1899 and 1907 the partnership acquired rights to five or six other races running to Camerons Gully and beyond to Baileys Hill, and in 1903 Jessie Ellis is listed as holding 100 acres of ground. When the wardens visited the valley in 1902, McDonald is described as using 2,900 feet of pipes to elevate ground 30 feet and employing four men. He was also building a new race to come in 375 feet above the claim, the one he was using providing only 200 feet of pressure. The reports suggest that he worked profitably until at least 1910, mentioning both Camerons Gully and Baileys Hill (known at an early stage as Gurvans Hill).

In 1893 Edward McMillan took up four acres on the north side of Drummonds Creek and in 1899 eight acres at Camerons Gully (AJHR 1903, C-3, List of Mining Privileges). In 1902 McMillan is described as running a sluicing claim with 35 foot high faces, using only 50 feet of pressure and employing four men. It sounds as if he is using the Pactolus race for ground sluicing. The following year he had brought in a high level race from Wrights Creek with extra water from Drummonds to provide 120 feet of pressure, led down through 3,500 feet of pressure piping to run an elevator lifting 12 feet. In 1904 and 1905 McMillan was still working three acres in shallow ground using relatively light plant, but in 1906 he abandoned the shallow ground and moved to an adjoining terrace, working a face 60 feet high. The water was also used to drive a pelton wheel and a Westinghouse Brake Company dynamo which supplied an electric lighting plant of two arc lamps each of 500 candle power, so that the claim could be worked at night. Work continued on the face for a year, but may have proved difficult. McMillan sold out in 1908 to the Ben Nevis Company who applied for more water rights and employed 11 men. The Mines inspectors' reports are brief for 1909 to 1910 and cease thereafter, but it is likely from the field evidence (see below) that the high terrace was worked off and on for several decades.

McMillan does not show up in the race licenses in the way that McDonald and the Ellis family does. His water rights were not picked up by the dredging companies of the 1920s and 1930s and brought through to the modern records. This is puzzling since he certainly acquired at least one of the high races and brought water from Wrights Creek. Also judging by the warden's reports both McMillan and McDonald worked both the major sites between Drummonds and Whittons Creek, i.e. Camerons Creek and Baileys Hill, from the mid 1890s to about 1910.

Three other alluvial claims show up as major workings during the decade 1900-1910. Sopers at Cinnabar Flat were higher up the valley than Glen Nevis (around GR810238 to GR820256), but Joe Parks near Drummonds Creek and O'Connells and Grahams at Whittons Creek are relevant to this report. Joe Parks took up three acres near Drummonds Creek in 1899 and worked by hydraulic sluicing through to 1908. Though he had 220 feet of pressure there is no indication that he ever put in an elevator on the 56 acres of his claim. O'Connell and Graham worked mostly in Whittons (now Whittens Creek) from 1893 to 1910, but two of their claims were described as on the south side of Whittens Creek and it would be surprising if they did not work around Baileys Hill at some stage. They were also users of the high races, since they

had 400 feet of pressure running through 1,200 feet of pipes. They too were using electric light to work the claim at night as early as 1904. The races from Drummonds Creek may have been used, as well as the races out of Whittens Creek and a high race brought round from Sproules Creek to the north. Frank Jones bought out the O'Connells in 1906, and the Jones family were to live in the Whittens Creek house and continue mining until 1948 (Parcell 1976:276). .

Work continued on the main sluicing claims from the 1920s into the 1940s. The Ellis brothers, probably sons of Jessie and John, continued working at Baileys Hill and the Jones apparently at the Pactolus Claim, though they lived behind Baileys Hill. After the Ellis and Jones families, work continued sporadically at Baileys Hill, mostly by the McLean family who are still the owners of buildings at Baileys Hill. Ian McLean and his son Ian Junior worked at Baileys Hill from the 1930s until about 1991. The McLeans both sluiced at the back of Baileys Hill in Whittens Creek and put in a tunnel under the south end of the Hill in the 1970s (F McLean: pers.comm.). The most recent active mining has been by L and M Mining Company on the Drummonds Creek flats and within Whittens Creek. Another company has worked in the last five years at Cinnabar Flat

Dredging in the Upper Nevis got off to a slow start. At least two claims were taken up in 1900 and another two in 1902. One of them was the Crewe No 2, a company that was working in the Lower Nevis. It is likely that the warden's note in 1902, that the Carrick Gold Dredging Company was shifting their dredge from the Lower Nevis to the Upper Nevis, applies to the first dredge actually set up in the valley (AJHR 1903, C-3:131). It lay idle for two years and then worked successfully from 1906 to about 1908, but there is no further mention of it in subsequent years.

It was difficult to get coal to the Upper Nevis and dredging did not start again until 1928 when Sydney Charles Fache set up an electrically powered dredge, supplied from a small hydro station. The dredge itself was the highly successful Earnscleugh No 3, which had been sold when the company ran out of good ground at Earnscleugh. The silt wheel was left behind. (It still lies inside the McPherson Road gate of the Earnscleugh Reserve (Peter Mason: pers.comm.). The dredge was shifted by Hannan and Rance of Lauder, whose two Leyland trucks put in the Arrowtown Irrigation Scheme pipes around the same time (Hamel 1996). These trucks must have been effective on what we would now describe as 4WD tracks. Campbell Hannan was the first man to take a heavy truck over Duffers Saddle when he shifted the dredge in 1926. Even so the larger parts of the dredge had to be taken in via the road from Garston, so as to avoid the very poor section of road in the Nevis gorge. Two AC generators accompanied it, which were driven by a pelton wheel. A 1921 photograph of the interior of the Earnscleugh power house shows a pelton wheel housing in the foreground and a generator behind it which could have been one of the two taken to the Nevis (Chandler 1986:. 86-7).

The dredge was set up on the old Crewe No 2 dredge ground. The company also employed Hannan to truck in the heavy gear of the government's Keystone drilling rig. In 1928 the dredge gave good returns, working down 50 feet, but ran into poor ground in the following year. It had difficulty in dealing with

the cemented gravels. In 1932 the races from Drummonds Creek were refurbished in order to produce more power to drive the 100 hp motor for the buckets, the 50 and 25 hp motors for the pumps and a 30 hp motor for the winches. The tail water from the power house would have helped fill the ponds which floated the massive dredge on its jarrah and ironbark pontoon, 138 feet long and 35 feet wide (AJHR 1933, C-3).

The ground became increasingly difficult to work, and there was still insufficient water to produce the power required by the dredge. Later in 1933 the power plant was converted to diesel, trucked in 44 gallon drums between two 90 ton oil storage tanks, one in Cromwell and the other beside the power plant. The dredge worked till May 1934 when the heavy ground finally defeated it. Ted Foord bought the diesel engine and at least one generator to shift to his claim at Roxburgh in 1938 (M Foord: pers.comm), and the dredge itself went to the West Coast. Some of the huts and possibly the other generator were shifted to the Pactolus Claim.

The field evidence.

It has not been easy to match the historic material with the workings on Glen Nevis. Most of the workings in the Upper Nevis are on or close to this pastoral lease and those outside were looked at during the 1989 survey. The valley flats are relatively featureless with very similar low spurs projecting out on to them. Only three or four tributaries are securely named and it seems likely that the visiting Mines inspectors were sometimes confused. The field evidence will be described by reference to the topographic map, moving from south to north, and not by the names of the miners who may have worked them.

Wrights Creek and vicinity.

Before starting the field work, there was confusion about the location of the southern boundary of Glen Nevis, which is shown on the NZMS1 S143 topographic map as running down a spur south of an unnamed creek lying south of Wrights Creek and between two sets of shallow workings. The map was incorrect and the boundary fence running down the spur *immediately* south of Wrights Creek is on the true boundary (Fig.2). Some sites to the south of the boundary were surveyed, and are included here so as not to waste the information.

The workings just south of the boundary (GR844307) extend along the south edge of an unnamed creek and up a tributary for about 700 metres and along the north edge of the creek for about 300 metres (Fig.3). They are small scale ground sluicings, fed by side races coming down from a high race from the south. The tailings are large low mounds, well vegetated, with sluice faces only 2 m high. There are two associated hut sites, both 4 x 3 m, one of them marked now by a sod fireplace, some flat galvanised iron, and a piece of dressed timber.

On a spur upstream of the main workings there was a low earth reservoir fed by a side race from the main

high race on the 900 m contour. Where the side race come off, there was an example of the efforts made to build the high races. Rather than go round a spur, a cutting up to 4.5 m deep had been excavated in the terrace gravels and the race edge carefully built up.

The Pactolus Race

One site was readily named, the Pactolus Race, since only one large race comes out of the Nevis River itself, works its way across the flats and ends about 70 feet above a claim. This race starts at GR843287 (Map NZMS 260, F43) just above the Roaring Lion Creek confluence, reaches the terrace edge at the unnamed creek south of Wrights Creek and then runs along the relatively straight edge of the flats across Wrights and Drummonds Creeks to a large elevator pond with two stone cottages (GR874343), described in the previous report as the Pactolus Claim. About 400 metres south of the Claim there are traces where a siphon carried the race across a gully (Figs.6 and 8). There are large trenches, 7 m across and 3 m deep, as well as traces of the pipelines (GR870337). The trenches were presumably the reservoirs from which the pipes to the claim started. Out on the flats the race runs in a trench 1 x 4 m for five kilometres, and along the hill edge the trench is 2 m wide and 50 cm deep. At least half of its course is inside Glen Nevis.

Drummonds Creek

The workings in Drummonds Creek are a well-concealed surprise, and were completely missed in the 1989 survey. The highest workings at about 950 m asl are fed by a short high race from a southern branch of Drummonds Creek. Where it reaches the sluicings, it passes between the ruins of two stone huts, 5.8 x 3.4 m and 4.3 x 3.4 m respectively at GR841351. Their chimneys still stand about 1.5 m high and the walls about 50 cm. The intake of a major race from Drummonds Creek to Camerons Creek begins opposite the two huts, running through pipes of rolled, bolted and welded pipes which must be post 1930s. On the true right of Drummonds Creek a pack track climbs away up a spur towards the top of the range (Fig.4). The track may run on to the line of the paper road near the tops.[2] There are the remains of another stone hut, 5.8 x 3.4 m, near where the pack track leaves the creek bed (GR842348). These sites lie just below the 1000 m contour. The Topoplot map produced another surprise — a short high race out of Drummonds Creek on the 1250 m contour, running south east for less than two miles to where it could feed into Camerons Creek. It is a well-defined race and when seen about 10 years ago was still about 3 feet across and 2 feet deep (Lex McLean: pers.comm.). It was described as for generating power and, with a drop of 450 m, it could have fed as much pressure as the pipes would hold to a pelton wheel.

Immediately downstream another high race crosses Drummonds Creek in a 15 inch diameter pipe suspended on cables. It has a feeder entering it from Drummonds Creek, which suggest s that it is the race that McMillan built in 1903 (see above). Below it where the main creek leaves the base of the range

[2] The present day droving track comes over the range further south at a lower saddle near Lorn Peak at 1430 m.

at 900 m asl, there are large scale heavy tailings below relatively low sluice faces (GR844347). The largest group of tailings is made up of heavy schist slabs, which have been carefully stacked in mounds 2-6 metres high, with many paved wheel barrow tracks along the tops of the mounds (Fig.5). There are three wide and partially revetted tail races winding down through them, with a recently occupied and intact hut at the mouth of one of them. Side races have been led down from the high race from Wrights Creek, but no reservoir was located above this group. A small race comes out of the true left of Drummonds Creek, and crosses to the true *right* in a 12 inch diameter pipe slung on a cable, so as to sluice faces lower down on the true right.

Only one earth reservoir was seen, placed relatively low down the line of tailings and beside a second bay of heavy tailings not so extensive as the upper lot. The reservoir was earth walled with a stone outer facing, 1.5 m high and 32 m long. The tailings were stacked against faces 12-15 m high, and were carefully revetted with one tail race about 75 cm wide. A third bay further downstream again has long winding heaps of tailings against low sluice faces up to 1.5 m high. These tailings are well grassed. Where Drummonds Creek emerges on to the flats, modern mining extending for about a kilometre has been rehabilitated to leave a flat surface covered with clover.

Scattered all the way down the historic tailings are huts, enclosures and rectangular dug out areas. The three huts in the top bay are made of mud-mortared stone slabs (Fig.5, huts 1,2,3). The top one, 2 x 3 m with walls 0.5 m high, may not have been a hut. The middle one is an elaborate hut, 5 x 3.5 m, with an annex 3 x 1.5 m, with walls still standing 60 cm high and a chimney of sod and stone, 1.3 m high. The stone work is rough and has been damaged by bottle hunters. Domestic debris included a pair of small hob-nailed rubberised boots, a broken camp oven, old tin cans, shovels and a tin match box (oval embossing with a star on the lid and striker on the bottom).

The hut (6 x 4 m) built across the tail race has walls 2.5 m high, a simple, lean to, corrugated iron roof and a metal chimney flue for a coal range (Fig.6). The design is that of a 1970s Ministry of Works hut, but the materials are traditional. The stacked stone is mud mortared and the two windows are old four-pane ones. One side wall is the stacked stone of the tailings. Inside there are four bunks, an easy chair, a chest of drawers, a kerosene lamp and other furnishings. The hut was built about seven years ago by a "loner", who visited the valley for two or three years, doing some mining and sphagnum moss gathering (Lex McLean: pers.comm).

Downstream of the reservoir there is a line of eight structures. Between the reservoir and the sluice face, there is a faint sod outline, 3 x 3 m, with a trace of a chimney and a frying pan lying on the ground. Beyond it there is a sod wall enclosing an area 6 x 4 m, and nearer the sluice face a dug out area 5 x 3 m. The latter does seem to have been a hut site, since there is stone paving and quite a lot of domestic debris that looked to be 1920-1930s in age such as an ABC beer bottle and pieces of poilite siding. Another dug out area (7 x 4 m) was probably a similar hut site (Fig.5, huts 4-7).

The next four structures could be older. The most western is a sod walled enclosure 12 x 13 m, typical of the Nevis Valley. Beyond it is the remains of a standard gabled stone hut, 5 x 3 m, with neatly built stone slab walls now only 50 cm high. The chimney still stands 1.5 m high and the door was not centrally placed in the long north wall but towards one end near the chimney. Except for some pieces of tin, there was no domestic debris. East of the stone hut, there is the remains of a sod hut, 3 x 2.5 m, and beyond it again another mud walled enclosure 9 x 9 m.

The strung-out settlement consisted of seven stone huts, three sod huts, two sod enclosures and platforms for two recent huts. It is unlikely that more than three or four of the huts were in use at any one time, but it looks as if miners have occupied the gully off and on from the 1860s to within the last decade. Of all the workings seen, these look most likely to belong to the 1870-80s period of mining, and may have been mostly worked by Chinese.

The Pactolus Claim and vicinity

About a kilometre north of Drummonds Creek two shorter creeks come down off the range and run close together where they emerge on to the flats. The northern one, Camerons Creek, has extensive workings where it reaches the flats[3]. The Pactolus Race ends at these workings, which were referred to in my previous report as the Pactolus Claim. Judging by the Mines Department reports and race licenses, however, it is likely that the Pactolus Company worked here only briefly and that most of the work was done subsequently by companies which harnessed the Drummonds Creek water. It is not clear whether McDonald or McMillan did most of the work here, as both had rights at Camerons Creek, and Pactolus Claim is retained as the name for this site.

In the small creek south of Camerons Creek, the terraces on both sides have been extensively worked up to the steeper slopes on the face of the range (GR865338). Most of the sluicings are shallow, with 3 m high faces, and the tailing mounds low, 1-1.5 m high, with no well defined tail races (Fig.7). On the south side of the creek the most eastern of the line of pits is deeper — up to 10 m high. Two head races come down off the Drummonds Creek races along the spur behind the sluice faces. The upper one continues east beyond the last pit, and there are marks of pipes setting off across the gully towards the Pactolus Claim, presumably to siphon the water to a point above the sluice faces.

West of the Pactolus Claim there is a distinctive site, which I have seen only in the Upper Nevis Valley — an historic power generator (Fig.8). The one for the Pactolus Claim is on a terrace about 500 metres west of the Claim and about 200 metres from one of the Drummonds Creek races (GR867343). Many of the pipes leading to it from the race still lie on the hillside, partially linked up. Some of the newer sections have been arc welded together, suggesting the pipeline has been renewed since the 1930s when portable

[3] Though not named on maps, the name of Camerons Creek was verified by the McLean family, who have mined there since the 1930s (Lex McLean: pers.comm.)

arc welding outfits became available. In 1968 the McLeans took out a new race license (WR10820Cr) for the generator and the line may have been renewed then. The pipes grade from 30 inch diameter down to 12 inches near the double cup pelton wheel that they drove. The pelton wheel, five feet in diameter, sits in a concrete lined trough. The transformer sits out in the open at the base of a power pole. According to its labels, it is a three phase transformer of 7.5 kva output, Swedish Model No 43269. A light barbed wire fence around the pole is the only safety measure. There are the remains of two other power generation plants further down the valley (see below).

The Pactolus Claim itself was described in the previous report (Hamel 1989). The sketch plan of it has been redrawn using the modern Topoplot as a base (Fig.9). The topography is similar to that of Baileys Hill to the south — a wide terrace running out towards the river with a spur projecting to the south with distinctive orange sediments in it. Where sluiced, both have developed similar lightly banded orange faces over 12 m high. At the Pactolus Claim there are two ponds, which are more likely to have been elevator ponds than dredge ponds, given their distance from the river. The ruins of the two stone huts still stand looking as beautiful as in 1989, with only minor deterioration of the walls (Fig.8). These are large huts, one being 5 x 11 m with an annex 3 x 6 m and the other 3 x 9 m. They stand in a very exposed situation on a knoll surrounded by tailings and close to the ponds. There is a more sheltered living site within the mouth of Camerons Creek, with the remains of sod walls, a sod hut (8 x 5.5 m), and two enclosures which from their positions are more likely to be gardens than reservoirs. Tucked away further up the gully again is a small modern hut of corrugated iron, built by John Williamson in the 1930s, occupied by the McLean family in the 1950s and still used by them as a holiday house. Shallow workings and tailings run up Camerons Creek in a similar pattern to the creek immediately to the south. There are interesting similarities and differences in the settlement pattern at the Pactolus compared to that at Baileys Hill (see below).

Power House Flats.

North of the Pactolus Claim the flats widen and are densely covered with tailings and complex ponds left by dredges (Fig.10). This flat was the main focus of dredging in the Upper Nevis, and the Topoplot map shows that the ponds form a line, except for two on the eastern bank of the Nevis River at the northern end of the line. The dredge tailings in the Upper Nevis are low, amorphous and generally well vegetated, with occasional dumps of unusual rubbish. Near the south end of the flat there was a heap of windings off a generator and beside a pond a section of grizzly bars from a gold saving table. It was not possible in the time available to distinguish the two eras of dredging, but a search of old survey records and more detailed field work should show where the two dredges worked and whether or not Fache's dredge completely reworked the Crewe ground.

The foundations of the living quarters for the dredge men, the power house and the diesel tank were found on the edge of the hillslopes just above the bogs and gravels of the flats. The house site (GR876349), is sheltered from the south by the rise in the terrace north of the Pactolus Claim (Fig.12).

The only standing structure is a concrete "cell", 2.5 x 2.5 m, with a single bed and kerosene heater — the bleakest of accommodation but still in use. There was bedding hung up over rails. Attached to the cell on the west side are the stone and concrete foundations of a hut, 4.5 x 3 m. To the east of it was the main building, of which there is now only the fallen chimney and the foundations of two rooms, 6 x 3 m and 6 x 8 m respectively. The foundations are concrete poured into kerosene tins, typical of the 1930 - 50 period. The chimney had a coal range in it.

The foundations for the power house and the pad for the diesel tank (GR879356) were massively concrete (Figs 11 and 12). The pad was a simple circle, about 6.5 m across, with a single small notch in one side. It was just possible to find a vehicle track leading to it, starting from beside a concrete chimney standing isolated beside the Nevis Road. The pad was down among the bogs, but the power house was on a point slightly raised above the bogs where dry land projected closest to the line of dredge ponds. The trace of a pipeline came down the hillside, dropping 45 m, and a small race ran into the concrete foundations. There is a curious trench cutting right across the small peninsula that the power house is on, so that it sits on an island about 78 x 34 m.

The walls of the building, 12 x 12 m, are outlined by narrow concrete foundations with the occasional bolt projecting from them (Fig.11). A gap and two steps mark a door at the south east corner. Within the foundations the water seemed to be run through channels in the concrete, with one flow straight through and another at right angles out to one side. It was not clear where the pelton wheel to drive the generators was placed. Water must have been piped directly to it from the high race. Two massive concrete blocks with two rows of heavy bolts were probably the foundations of the two generators which accompanied the Earnscleugh 3 Dredge when it was shifted to the Nevis in 1925-26. The concrete tail race is 60 x 90 cm. This tiny hydro station should be examined by an engineer who could properly evaluate the significance of the foundations.

A power line with a few standing poles and three wires lying on the ground runs between a generator at Baileys Hill and the Pactolus Claim. It runs past the hydro station about 100 m upslope from it. There is no clear indication that the hydro station was connected to the line, even though the warden's report comments that Mr Williamson at the Stone Huts, i.e. the Pactolus Claim, took over the station in 1939.

Baileys Hill and vicinity

The third power plant in the valley is tucked into the south west corner of the Baileys Hill settlement. Like the one west of the Pactolus Claim, it is a transformer set at the base of two power poles with a shed nearby for the power source (Figs 13-15). This would have once been a pelton wheel driven by water falling only about 30 m from the ridge to the north east. More recently power was supplied by a Perkins diesel engine still attached to the tractor for which it was designed. The tractor was once a Fordson Major (Ford Motor Company, Dagenham, England). The metal back wheels with large mud lugs are still in place but the front is up on blocks. A recent Swedish transformer is set up on the terrace above the tractor, on a frame incorporating two power poles, and lightly surrounded by a barbed wire fence.

Lying in the bog there is a discarded General Electric transformer (exposed fin type) with brass plates and labels saying:
"TRANSFORMER, Type H, Form SP, Cycles 40, Capacity 70 kilowatts, Volts 2500-5000 125/250. Transformer must be filled with oil before connecting in circuit.
GENERAL ELECTRIC, Schencecty, N Y, U S A. No 4994."
(The use of the object itself for providing information which in these days is put into a paper manual is much more convenient for the archaeologist.)

Baileys Hill is a knob, about 200 m long, linked to the main range by an almost level ridge 800 m long. Since it was the knob which was sluiced, the water from the large races out of Drummonds and Whittens Creeks had to be brought along the ridge and around the knob. It is likely that the Hill has been sluiced off and on for most of this century, judging by the Mines Department reports and the number of races on the ridge. At least eight parallel races run along the ridge and are fitted alongside or into two large rectangular reservoirs. The relationships of the races and reservoirs is best explained by the sketch plans (Fig.14). The upper reservoir is about 215 m long and about 100 m wide at the base, and received water only from Whittens Creeks. It is enclosed by simple earth ridges up to 1 m high and 3-4 m wide across the base. Only the outlet has stone and pipes to control the water. Another ridge runs down the centre of the reservoir, either to direct a race or form a smaller pond. The races are not large and the actual trenches tend to be about 30 x 50 cm, running within larger V-shaped trenches, 80 x 150 cm.

The middle of the ridge is boggy and the races are built up on low aqueducts. The lower reservoir is similar to the upper with slightly lower ridges and a race carefully channelled past it on the south side. The water from Drummonds Creek runs only to the south side of the workings and not into the reservoirs. It ran down to the power plant only and was not used for sluicing. The most northern of the eight races is not involved in the reservoirs but runs straight down to Whittens. There is a race to Whittens out of the reservoir as well. Below the lower reservoir the races form a tangle, one passing over a large aqueduct (6 x 2 m) now breached by other races coming in from the side. The aqueduct is about 100 m long and would have acted as a deep pool for the heads of short pressure pipes running down to hydraulic nozzles, similar to the systems seen at Gabriels Gully, Bannockburn and Gees Flat. The races that break away to the south side of the ridge have been zigzagged downslope to break their force and were probably mostly piped when the site was working. Smaller races run right out to the southern tip of the Hill. A live race out of Whittens Creek still runs down the south side of the Hill and has been maintained recently up on the ridge.

The sluice faces are up to 30 m high, with a strong line of heavier stones about 7 m down from the top. The pinkish gravels are very distinctive. The tailings heaps are well vegetated with native shrubs, including attractive ones like *Hebe pimelioides*. Large outwash fans of finer gravels stretch south and east across the road to the river, with winding ridges of gravel like glacial eskers running down them. Judging by the amount of material, Baileys Hill must once have extended several hundred metres further

south. It has been worked by all three major technologies — ground sluicing, tunnelling and hydraulic sluicing and elevating. The elevating has left two, deep pools up to 30 m long against the eastern side of the hill, with large heaps of heavy tailings beyond them. Tail races are simple channels between the mounds and there is no stacked stone. A single power pole marks where electric light was brought to the elevator, so that work could continue at night.

At the south end of the Hill, there is a group of wooden huts, a wrecked 1940s Plymouth car, a metal work bench and other materials of twentieth century mining. The work bench is 2.5 m long, 35 cm wide and made of 75 mm plate. An adit with a collapsed portal runs into the south end of the Hill under an old sluice face. It is lined inside with quarter inch steel plates held in place by timber sets (8 x 6 inches) to form a tunnel about 6 x 4 feet. Close to the mouth of the tunnel there is a corrugated iron shed with a Broomwade air compressor still in place and a pipe and electric light cabling running from it to the portal. A 4 inch belt lying beside the compressor would have been linked to an electric motor. Two of the power poles nearby are almost buried by falling debris. The insulators and isolating rods indicate a three phase system. Two sets of light railway lines still run out from the debris around the portal, a light one of 12 pound rail to a dump and the other of 36 pound rail to a metal sluice box. There was very little mullock being produced. The design of the system shows that the truck was end tipping. The sluice box has metal riffle bars bolted together. A fire has burnt some of timber structures. A square reservoir in a hollow to the east of the tunnel portal must have been an effluent pond.

The pattern of distribution of small huts is not informative. There are five grouped at the end of the track and reasonably close to the tunnel entrance. One of them has an outside electric light with a frilly metal shade. Across boggy ground to the west there are two other huts, the nearest decorated with a mural of leaves (Fig.2a) and the other right out of sight beside a natural creek with a dunny nearby [4]. Up the creek above the latter was a foundation of heavy timbers in the middle of a bog, making a platform 2.8 x 5 m, and including one timber that was 12 x 6 inches. A long length of three inch diameter pipe beside it suggests that it was the foundation of a water tank for the huts.

The only site found which appeared to be early was a sod hut foundation west along the line of the power lines running from the Baileys Hill transformer. The hut foundations, 4 x 3 m and 30 cm high, are on a terrace just above the level of the bogs, and are now surrounded by hummocky ground caused by a feeder race and bywash from the high races out of Drummonds Creek. The only reason I noticed the hut was because a rectangle of sods, 8 x 6.5 m, had been cut from the hillside above it, and the straight edges are still visible on the steeply sloping ground.

According to the legal title, the northern boundary of Glen Nevis runs from the edge of a small freehold title at the edge of the road, across the northern tip of Baileys Hill to the true right of Whittens Creek,

[4] This pattern of concealing the most recent and habitable huts is repeated at Whittons Creek, at Camerons Gully and at Drummonds Creek.

then for 900 m up the true right bank to where the creek turns north. The boundary then runs uphill out of the valley. This puts all of the workings on Baileys Hill, the ridge of races and some minor sluice faces beside Whittens Creek in Glen Nevis. The Whittens Creek houses are on the freehold section which belongs to Loch Linnhe station (L.Taylor: pers.comm.). The most recent small scale mining is a sluice pit just above the houses worked by Ian McLean Senior until about 1991.

Summary and discussion

There are no archaeological Maori sites recorded on Glen Nevis. Traditional evidence of the use made by Maori of the Upper Nevis should be obtained from local iwi.

Runholders moved into the Upper Nevis in the 1870s when Masters tried and failed to farm in the valley. He and subsequent runholders supplemented their income by actively mining for gold. The homestead of stone buildings, consisting of a large house, a dairy and hut with some struggling trees around them, was built by the O'Connell family some time after 1881. It was occupied, mostly by mining families, until about 1948 when the corrugated iron roofing was removed. When the original Glen Nevis and Staircase runs were subdivided at the beginning of the century, the farmstead on a separate small section went into Loch Linnhe. There are no structures specifically associated with nineteenth century farming on the present day Glen Nevis pastoral lease.

All the historic sites described in this report are gold mining sites. Mining began in the 1860s and continued off and on into the 1990s. There is no active mining at the moment in the valley. The early and late periods are poorly documented, but there is relatively good documentation from 1892 to 1940. It has not been possible to identify any particular sites as belonging to the 1860-70s period.

The earliest site that can be identified is the Pactolus Race which has gained some notoriety for its futility (Hood 1990). It starts in the Nevis River, just above the Roaring Lion confluence and runs across the flats and then along the terrace edge to the Pactolus Claim. Built in 1892 to carry 60 heads of water to only 70 feet above the claim, it would have taken 134 man years for it to carry out the work at the claim equivalent to the work that went into building it. It demonstrates the effects of ignorance about hydraulics.

Around the turn of the century there were four large sluicing claims which can be identified as being located on Glen Nevis — Joe Parks at Drummonds Creek, Ed McMillan and Robert Macdonald at the Pactolus Claim and Baileys Hill, and Graham and O'Connell in Whittens Creek. All these sites are linked by systems of races out of the Nevis itself (the Pactolus Race), and out of Wrights, Drummonds and Whittens Creeks. Nearly all the races run northwards. Walking the races would have provided more information on how the races related to the sites but in the time available this was not possible. The earliest races from Drummonds Creek, with priorities dating to 1866 and 1869 (see Appendix 1), are likely to be the lower races, since the accounts of new races built from about 1902 emphasise that they are

high races coming in up to 375 feet above the claims. The lower races would have been adequate for ground sluicing in the 1860s and 1870s.

The workings in Drummonds Creek are large scale heavy tailings below relatively low sluice faces (Figs.4 and 5). The largest group of tailings of heavy schist slabs have been carefully stacked in mounds 2-6 metres high, with many paved wheel barrow tracks along the tops of the mounds. There are three wide and partially revetted tail races winding down through them, with a recently occupied and intact hut at the mouth of one of them. The hut is an interesting mixture of modern hut design and old materials. No owner for it has been located. There are the remains of a line of hut ruins and small enclosures, about 14 in all, running down the true right of the creek over a stretch of less than 600 m, set mostly above the sluice faces. North of the Drummonds Creek there are extensive shallow sluicings in a short creek coming down off the range at GR865338 (Fig.7). These workings are identified as Joe Parks', because he was described as working near and at Drummonds Creek from 1899 to 1908 by hydraulic sluicing three acres and 56 acres, but with no indication that he ever put in an elevator. These are the only workings of large enough scale with no elevator holes to fit the description of his workings. .

In 1893 Edward McMillan took up four acres on the north side of Drummonds Creek and eight acres at Camerons Creek in 1899. In 1902 he is described as using a race with a head of 50 feet which sounds like the Pactolus Race and would put him on the Pactolus Claim. Robert McDonald was also becoming a major player in the Nevis from 1896 onwards. In 1899 he went into partnership with the Ellis family, sheep farmers in Southland and Victoria, Australia, and between them they accumulated licenses to nearly all the races out of Drummonds Creek. The descriptions provided by the Mines inspectors suggest that both men mined at the Pactolus Claim, Camerons Creek behind the Claim and at Baileys Hill at various times between 1899 and 1910. They certainly shared the water supplies.

In 1903 McMillan built a high level race bringing six heads of water from Wrights Creek and two heads from Drummonds Creek. When the race systems high in Drummonds Creek were examined, one of the race systems quite clearly showed this pattern, the water from Wrights crossing Drummonds Creek in a pipe and a branch from higher in Drummonds bringing the extra water in.

The workings at the Pactolus Claim are distinguished by some of the most attractive ruins of stone cottages I have seen (Fig.9). Two large stone huts with their chimneys still rising to almost full height stand on a bare knoll beside a deep elevator pond. There are amorphous mounds of tailings around them, as well as sluice faces of lightly banded orange gravels about 12 metres high. There is a more sheltered living site within the mouth of the valley with the remains of sod walls, a sod hut (8 x 5.5 m) , and two enclosures which from their position are more likely to be gardens than reservoirs. Tucked away further up the valley again is a small modern house of corrugated iron belonging to the Williamsons and then the Mcleans. Shallow workings and tailings run up Camerons Creek in a similar pattern to the creek immediately to the south. There are interesting similarities and differences in the settlement pattern at the

Pactolus compared to that at Baileys Hill (see below).

North of the Pactolus Claim the flats widen and are densely covered with tailings and complex ponds left by two dredges (Fig.10). Though they form most attractive patterns when seen from above, these ponds are the signature of failure. They were formed by a coal-fired dredge working for only two out of six years (1902 - 1908) and a large electric dredge struggling for seven years (1927-1934). The electric dredge brought into the valley by Sydney Fache was famous. It had been the Earnscleugh No 3 dredge, which produced much gold and some of the lines of massive tailings in the Earnscleugh Reserve. The historic reports indicate that in the upper Nevis it was never able to work to its capacity. The dredge tailings in the Upper Nevis are low, amorphous and generally well vegetated, with occasional dumps of unusual rubbish from the machinery.

The electric dredge pontoons were 138 feet long and 35 feet wide. Just as in the Arrow Gorge, where Hannan and Rance's Leyland trucks were the first heavy trucks on the Macetown Road, they were also the first trucks to drive over Duffers Saddle in the process of carting in the Earnscleugh No 3 dredge. The larger sections had to be taken round via Garston. The foundations of the power station set up for it, using two of the generators and a pelton wheel from Fraser River power station, are visible on a low peninsula near the middle of the flats. Nearby is a round concrete pad for a diesel storage tank, used when a diesel generator was installed early in 1934, and used for only four or five months. The hard cemented wash was too hard, and the company gave up in May 1934. The dredge itself went to the West Coast and the electrical equipment was bought by local miners. The large dredge ponds and low amorphous tailings of the Nevis can be compared with the small ponds and massive rows of tailings of successful dredging in the Earnscleugh Reserve.

Baileys Hill is the most prominent mining site in the valley, with large orange brown sluice faces, 30 m high, visible from some miles away. The hill itself is a knob about 200 m long (Fig.13), linked to the main range by a level ridge 800 m long (Fig.14). All the races from Drummonds and Whittens Creeks to the sluicings on the knob have to run out along the ridge which also carries two reservoirs. The south end of the sluicing breaks into pinnacles at the foot of which the McLeans drove an adit into the lower levels of the gravels. Near the adit there are the remains of a sluice box, a compressor to drive air into the mine and parts of an electricity generation system, based on the diesel engine of a Fordson tractor. There is a modern Swedish transformer on a pair of power poles, and a power line of three wires runs up the valley past the power house foundations to the Pactolus Claim. The three power sources could all have been linked up into a mini-grid. Around the mine there are about six small sheds and cribs in various stages of maintenance, three of which are in good repair and still used as by the McLean family as holiday houses.

It is likely that there has been mining here off and on for at least 100 years and certainly by the McLeans until the 1970s. The only site suggestive of earlier mining nearby is the remains of a sod cottage on the hillside to the west of the claim. Large outwash fans spread away from the knob towards the river and to

left by elevators are tucked between the sluice faces and high mounds of tailings.

Both the Pactolus Claim and Baileys Hill have a sluiced ridge of orange brown gravels running parallel to the river and linked by an intact ridge to the main range. Each has two elevator ponds, an electricity generator with a power source, and concealed 1930s houses belonging to the McLean family. Baileys Hill has large stone buildings for the farmstead on its north side (Whittens Creek) and the Pactolus Claim has the next largest stone buildings in the valley on its south side. This similarity though is illusory, in that the buildings at Baileys Hill were built as part of a farmstead and the houses at the Pactolus Claim have no links to pastoralism.

Statutory and legal matters

The Nevis Valley is covered mostly by pastoral leases, with a marginal strip along both sides of the Nevis River. The Garston Nevis Road appears to follow the legal road line, and there is a paper road running east west through Glen Nevis from the formed road, over the Hector Mountains beside Trig F to Kingston.

There are several race licenses still held as operative by the Otago Regional Council. Though still listed, it is likely that most if not all of these licenses have lapsed. The McLean family consider that they do not hold any race licenses. Ian McLean Senior used a race up to 1991. L and M Mining Co still have licenses in Whittens Creek which have not expired.

The houses in the vicinity of Baileys Hill and one at Camerons Creek are owned by descendants of Ian McLean who mined there from the 1930s to 1991, but none have legal tenure to the land they are on (Correspondence DOC file P201, July 1984; Francis Crook and Lex McLean: pers.comm.). The McLean family allowed the claim licenses to lapse about three years ago, and legal title to some of the mining equipment may have passed to the Crown. The Crown Minerals Act may, however, have changed this provision.

Only the Pactolus Race can be identified as certainly pre 1900 and protected under the Historic Places Act 1993. The three races with priorities dating to the 1860s cannot be identified for certain, and it is highly likely that they were cleaned out to beyond the old profile in the 1930s. The *line* of the lowest races from Drummonds Creek to Baileys Hill could be accepted as protected under the Act, but the higher races were more likely to have been formed after 1900.

The Draft Conservation Management Plan includes the Nevis Valley within Special Place 26 Remarkables. The remote character of the Nevis Valley is noted, and it is described as a supreme example of a little modified and virtually treeless Central Otago landscape with one of the most intact goldfields' landscapes

remaining in Otago. Among the objectives is the protection of the high historic values and remoteness of parts of this Special Place. Implementation includes endeavours through pastoral tenure negotiations to add appropriate contiguous areas of the Nevis catchment to the Remarkables Conservation Park. As a separate matter, efforts will be made to secure the landscape (both historical and natural) qualities of the Nevis Valley and examples of its indigenous ecosystems (Para (r), p.112).

The Remarkables Conservation Park boundaries are unlikely to be contiguous to the flats of the Upper Nevis and it is more appropriate to follow the guidance of paragraph (r). The paper road would provide a legal link between the flats and the Remarkables Conservation Park.

Recommendations.

Like the Lower Nevis, the Upper Nevis contains a wide range of relatively intact mining sites in an even less modified setting than the Lower Nevis. There are no permanently occupied buildings in the upper valley, and the buildings present are small and mostly inconspicuous. Some of them are still owned and loved by the descendants of the miners who built them, providing a valuable human link to the mining community of the Upper Nevis. Unlike the lower Nevis, there are no fences or cultivated paddocks between the road and the sites. The sites are significant because they are undisturbed representations of ground sluicing, elevating and hydraulic sluicing, with intact head races and reservoirs, especially for the period 1890 to 1910, and lie in an unmodified and attractive remote setting. The sites are easy to understand and clearly visible under grassland with few woody weeds, and so are more accessible to visitors than many lowland sites in Otago. (Otago sites in general are far better -preserved and easier to visit than sites on the other two big goldfields of New Zealand — the West Coast and Coromandel.) Other high altitude sites such as the Serpentine, Criffel and Lammerlaws do not have such good road access. Safety issues are minor. Documentation for the main period of workings is adequate, and the McLean family can provide unique material on the later twentieth century mining.

Over 80% of the historic sites in the valley are on Glen Nevis pastoral lease, and there is an opportunity here to establish controls which will maintain the valley as a remote historic landscape. This concept could only be established in Otago and is akin to the Low Impact Zone in Mount Aspiring National Park. (The Serpentine, Criffel and Lammerlaws also contain smaller areas of remote historic landscapes.) If a philosophy similar to a Low Impact Zone is adopted, erection of buildings other than those of the type and function already present, further mining, tarsealing of the road, and concessions for tourist operations should be banned or at least discretionary activities. In the spirit of the R M Act, use and management of the landscape should be effects based.

The valley should not be considered as a museum but as a landscape where the present farming functions continue to be carried out using the present infrastructure. Grazing by sheep will do little harm to historic sites, but grazing by cattle on the true left of the river between Whittens Creek and the top of the flats should be prevented. (Nokomai Station grazes cattle on the true right of the river and drives them out up

the top end of the flats which does little harm.) The use of a helicopter by the farmers for occasional mustering will have little effect on visitor perceptions, but the regular use of helicopters by tourist operators would be undesirable. The descendants of the mining families should be encouraged to maintain their holiday cribs in the same style as they were built.

Implementation

1 The core area of the historic sites in the Upper Nevis lies on Glen Nevis, and should be protected by the department acquiring all the land between the river and the upper water races, i.e.up to about the 1000 metre contour.

2. This area should be managed on a *status quo* basis. Either Historic Reserve or Conservation Area status would be appropriate. Registration under the Historic Places Act 1993 of all the sites as an Historic Area would provide for protection under the District Plan. Historic Area as defined in the Act is an area of land containing a group of inter-related historic places, which form part of the historical and cultural heritage of New Zealand. This definition describes the mining sites in the Upper Nevis accurately, especially since the most prominent ones were physically linked by the water races and all were linked by community of place and occupation. The sites include the old homes of 1930s miners now used as holiday cribs.

3. Management and interpretation should be minimal, and visitors encouraged to explore and discover the sites for themselves. The only sites that would be difficult to locate and mysterious are the electrical installations which need further investigation to explain the significance of the remains.

4. If visitors are to be encouraged, management and interpretation should be for the whole valley. The most important site outside Glen Nevis is the Whittens Creek homestead, which will inevitably draw visitor attention. If the Glen Nevis section of the valley acquires strong protection, it would be courteous to discuss the effects of increased visitor numbers on the homestead with its owners. The owners of holiday houses should also be consulted about effects of vandalism.

5. Many of the visitors would enter via the Garston Road and would pass through the mess left by recent mining at Cinnabar Flat higher up the valley. It would be appropriate for the department to advocate for the rehabilitation of this area with Otago Regional Council.

6. The retention of the present landscape characteristics is important as a context for the sites. The strips of level ground sown with clover by L and M Mining Co during rehabilitation after mining are tolerable because they are relatively concealed and indicative of modern mining, i.e. sterilisation by the bulldozer. Wide scale ploughing and development of introduced pasture on the more visible parts of the flats would not be appropriate.

7. Two aspects which are worth further investigation are the Drummond Creek workings and its huts which may be early and Chinese, and the electrical installations. Most of the latter will belong to the 1930s, and their builders are fast disappearing. The sites may provide suitable theses topics on historic archaeology.

8. ICOMOS principles should be followed in the management of individual sites, such as the power installations, the mine at Baileys Hill and old miners' houses and huts.

9. Tenure of the houses and huts that can be proven to be owned by the McLean family or others should be secured by leases to occupy, similar to those given to their mining forebears. In return some of the owners may be willing to accept caretaker duties.

Acknowledgements. I am grateful to Peter Mason for his expertise in describing the various mining artefacts, especially those connected with early electricity generation. The McLean family (Francis Crook, Lex McLean) have added a human dimension to the history of the Upper Nevis.

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Appendix 1.
"Current" water race and mining licenses (Otago Regional Council and Ministry of Commerce) and owners of structures.

The information on these licenses has been used in developing a history of the mining in the valley. Legally they were current in 1974, when it was shown that they had been notified as current in 1969-70 or else the license period had not expired (Brian Mooney: pers.comm.).

McDonald's races from Drummonds Creek to Camerons Gully.
WR1962Cr 20/3/1906 Issued 1906 to Florence Rose Ellis, wife of Thomas Chute Ellis, Mt Gambier, South Australia, sheep farmer, and to Jessie Margaret Ellis, wife of John Chute Ellis, Invercargill, runholder, and Robert Ranald McDonald, Upper Nevis, miner. Starting at a point in Drummonds Creek taking six heads, then through four small creeks between Drummonds Creek and Camerons Gully, taking two heads from them and ending in Camerons Gully. Length three miles, for mining only. *Priorities 24/12/1866.* Transferred to Charles Fache 1922, to Upper Nevis Dredging Co 1927, to Nevis Diesel Electric Dredging Co 1933, to James Williamson 1939, to John Williamson 1940, to Ian McLean 1949 and held until at least 1952.

WR6369Cr 20/3/91 To Thomas Cross Statyn Starting in Drummonds Creek, taking six heads, through a small gully taking two heads and ending in Camerons Gully. Three miles long. *Priorities 24/12/1866.* Transferred to Robert McDonald 1898.

WR106Cr 8/6/1899. Issued to Florence and Jessie Ellis and Robert McDonald. Starting in Drummonds Creek taking two heads and flood water from Rody Gully and running about 150 feet above WR6369 to Camerons Gully. About 2.5 miles long, 2.5 x 2 feet.

WR107Cr 8/6/1899. Issued to Florence and Jessie Ellis and Robert McDonald. Right to take four heads from Drummonds Creek to run in WR6369 already constructed. Similar history to WR106Cr.

WR2094Cr 8/11/1906 Issued 1906 to Florence and Jessie Ellis and Robert McDonald. Starting in the Upper Nevis at a point in Doolans Creek (sic) about 30 chains from Drummonds Creek and ending in Drummonds Creek above intake of grantees WR106Cr 8/6/1899. 40 chains long, running E and W, two heads, 2 x 1.5 feet, for mining and to increase supply in WR106Cr. Transfers as for WR1962Cr. No previous priority.

WR2305Cr 1907. Issued to Florence and Jessie Ellis and Robert McDonald. An extension starting at the end of WR106Cr and ending at Special Alluvial Claim 134, 6/7/1899. Length 2.5 miles, 2 x 3.75 feet, *17 heads* for mining and estimated to take two years to build for £600. Transfers as for WR1962Cr. No previous priority.

WR2122Cr 6/12/1906 To Jeremiah and William O'Connell. From north branch of Drummonds Creek ending at Gurvies Hill, upper Nevis, three heads for mining. Four miles long, 2 x 1.5 feet. Exchanged for WR2198Cr, 16/1/1891. *Priority 16/3/1869.*
Transferred to Florence and Jessie Ellis and Robert McDonald 1907 and then to the same people as WR1062Cr.

WR10820Cr 18/6/1968. To Gavine McLean and others, Milton. From Drummonds Creek and running two miles to Camerons Creek, 18 x 14 inches, four heads for generating power for mining purposes. No renewals and no priorities.

L and M water rights
4099, 4100, 4101 Consents granted Nov 1992 to expire with MR32 2617. Rights to take from Whittens and Drummonds Creeks and discharge water into ponds beside Drummonds and Nevis.

ML32 3008 Strip up Whittens Creek. Issued to L and M Mining. Expiry date 2004. Open cut mining and earth moving methods to be used.

ML32 2617 Strip up Drummonds Creek. Issued to L and M Mining.

Owners of structures
Mrs F Crook, 41 Baker Street, Stirling. House in Camerons Creek (GR872344)
Mr A (Lex) McLean, Earnscleugh Rd, RD6, Clyde. Spokesman for the owners of three houses at Baileys Hill (about GR884364).
Ian Leadley, address not known, Hut in Drummonds Creek.